

CARDIOPULMONARY DYSFUNCTION

Date 28/6/21
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1. Cardiopulmonary Assessment :-

- Subjective -
- Name.
 - age.
 - gender.
 - address.
 - Marital status.
 - Religion.
 - occupation.

• Chief complaints -

1. Breathlessness.
2. cough with or without expectoration.
3. chest pain.
4. Noisy breathing - wheezing / stridor.

• Associated complaints -

1. Hemoptysis.
2. Hoarseness.
3. voice changes.
4. Dizziness.
5. Fainty / Syncope.
6. Headache.
7. ankle swelling.
8. Cyanosis.

• Constitutional complaints -

1. fever.
2. excessive sweating.
3. loss of appetite.
4. nausea.
5. Vomiting.
6. weight loss.

7. fatigue.
8. weakness.
9. exercise intolerance.
10. Altered sleep.

lung volumes & lung capacities - refers to the volume of air associated with different phases of the respiratory cycle.

- lung volumes are directly measured lung capacities are inferred from lung volume.
- instrument is spirometry.

- * lung volumes :- (4 type) -
1. Tidal volume.
 2. Inspiratory reserve volume.
 3. Expiratory reserve volume.
 4. Residual volume.

i) **Tidal volume** :- normal volume of air inspired or expired during quiet breathing.

$$TV = 500ml$$

ii) **Inspiratory reserve volume** - extra volume of air inhaled after tidal volume by max inspiratory effort.

→ 3000^{ml} in adult male.

iii) **Expiratory reserve volume** - extra volume of air that can be exhaled after tidal volume by max expiratory efforts.

1100 in a normal adult male.

4. **Residual volume** - volume of the air left out in lungs after forceful expiration or complete expiration.

→ $1200 / 1100 = M/F$

*) **Lung Capacities** :- These are combinations of 2 or more lung volumes.

1. Inspiratory capacity.
2. Expiratory capacity.
3. Functional residual capacity.
4. Vital capacity.
5. Total lung capacity.

1) **Inspiratory capacity** - max. volume of air that can be inspired after normal tidal expiration.

- $IC = IV + IRV$
 $= 500 + 3000$
 $= 3500 \text{ ml}$

2) **Expiratory capacity** :- max. volume of air that can be expired after normal tidal inspiration.

$EC = TV + ERV$ [$500 + 1100 = 1600 \text{ ml}$]

3) **Functional residual capacity** - volume of air remaining in lungs after normal tidal expiration.

$FRC = ERV + RV$ ($1100 + 1200 = 2300 \text{ ml}$)

* Significance of FRC :-

- 1) Significance - It continues exchange of gases.
 - So that conc. of O_2 & CO_2 is maintained.
 - Breath holding is made possible.
 - Dilution to toxic inhaled gases.
 - prevents collapse of lungs.
 - reduces workload of respiratory muscles & of right ventricle.

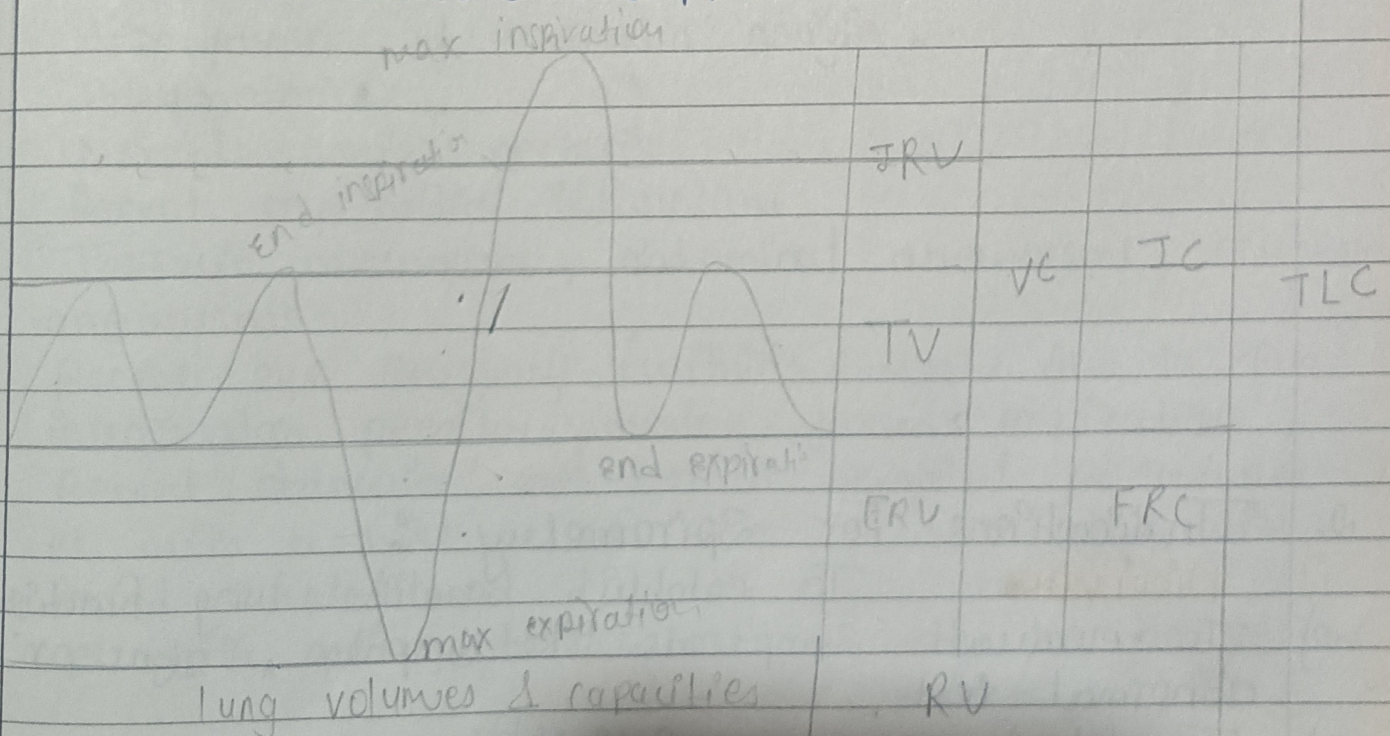
4) Vital Capacity - max amount of air expelled after deepest possible inspiration.

- $VC = TV + IRV + ERV$
- $500 + 3000 + 1200 = 4600 \text{ ml.}$

5) Total lung Capacity -

- 1) volume of air present in lung after max. inspiration.

a) $TLC = VC + RV (4600 + 1200 = 5800 \text{ ml})$.

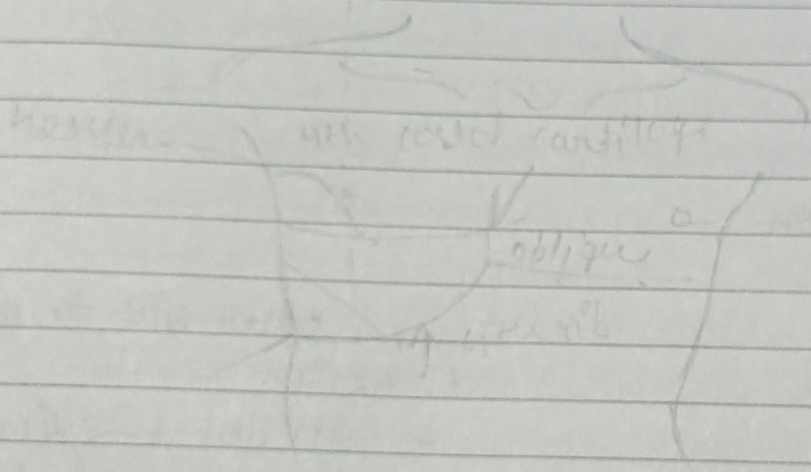


1. Surface Marking of lungs :-

Anterior - The lower border of the lung (at rest) extends down to the 6th rib.

→ The oblique fissure is marked anteriorly by the point at which the midclavicular line crosses the sixth rib.

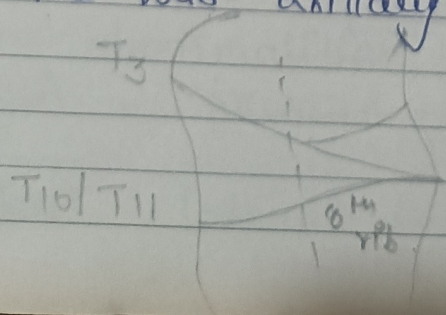
→ The horizontal fissure on the right is marked by the position of the 4th costal cartilage.



2. LATERAL :- The oblique fissure curves upwards towards the 3rd thoracic vertebrae.

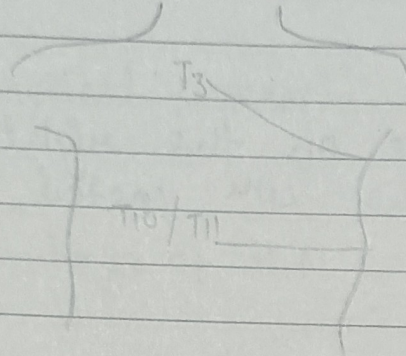
→ The horizontal fissure extends as far as the oblique fissure in the mid axillary position.

→ The lower border of the lung extends to the eighth rib in the mid-axillary line.



3. POSTERIOR - posteriorly the oblique fissure reaches up to the level of the 3rd thoracic vertebra.

→ The lower most border of the lung is marked by the 10th to 12th thoracic vertebra.



NOTE

1. General Inspection -

general inspection

1. general demeanour
2. Breathlessness
3. Sweating
4. Pain or discomfort

other site to note.

1. noises.
 - stridor [inspiratory]
 - wheeze [expiratory]
2. Hoarseness whilst talking.

5. Cachexia
6. colour
 - cyanosis
 - pallor.

3- can they talk in full sentences?